# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LAHONTAN REGION

# CALIFORNIA ENVIRONMENTAL QUALITY ACT

# ADDENDUM TO THE NEGATIVE DECLARATIONS FOR PACIFIC GAS AND ELECTRIC COMPANY'S DESERT VIEW DAIRY LAND TREATMENT UNIT

## PREPARED IN SUPPORT OF AMENDED WASTE DISCHARGE REQUIREMENTS

## PACIFIC GAS AND ELECTRIC COMPANY DESERT VIEW DAIRY REVISED OPTIMIZATION PROJECT

## JUNE 2010

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## I. INTRODUCTION

The analysis contained herein has been prepared by the California Regional Water Quality Control Board, Lahontan Region (Water Board), in conjunction with the issuance of Amended Waste Discharge Requirements (WDRs) for Pacific Gas and Electric Company's (PG&E) Desert View Dairy (DVD) Revised Optimization Project in Hinkley, California (the Project) as shown on Figure 1. PG&E requested amending the existing WDRs to allow increased volume of discharge to the land treatment unit at the DVD and groundwater extraction from two parcels adjacent to the DVD for the purposes of controlling migration of chromium in groundwater and to treat the extracted groundwater. The analysis in this Addendum follows and builds upon the 2004 Initial Study and Mitigated Negative Declaration for the Interim Plume Containment and Hexavalent Chromium Treatment Project at the Desert View Dairy (Original Project) and the 2007 Initial Study and Mitigated Negative Declaration for the Desert View Dairy Land Treatment Unit Extraction System Optimization Project (Optimization Project), collectively referred to as the Negative Declarations. The Negative Declarations contain assessments of potential environmental impacts associated with the two projects. The purpose of this Addendum is to evaluate the effects and cumulative impacts that may result from amending the WDRs to allow increased discharge to the land treatment unit and groundwater extraction from two parcels adjacent to the DVD that were not addressed in the Negative Declarations.

## II. PROJECT BACKGROUND

The PG&E Hinkley Compressor Station compresses natural gas before pumping it through pipelines to central and northern California. Between the Compressor Station's opening in 1952 and 1966, PG&E used hexavalent chromium as an anti-corrosion agent in the cooling tower water. From 1952 to 1964, untreated wastewater from the cooling towers went to unlined ponds. Some of this wastewater went through the ground to the groundwater, about 80 feet below the surface. Beginning in 1964, the wastewater was treated prior to discharge to the unlined ponds while other corrosion inhibitors were evaluated. In 1966, phosphate replaced hexavalent chromium in the cooling tower water. Lined evaporation ponds were built in 1972. But hexavalent chromium from the old wastewater ponds has affected the groundwater at and north of the compressor station in an area approximately two miles long and more than mile wide.

The head of the chromium plume extends under the DVD, and recently has extended in a narrow area to the northeast of the DVD. The Original Project was designed to capture the head of the chromium plume through extraction of groundwater at the DVD. The extracted groundwater containing hexavalent chromium is discharged to a land treatment unit under WDRs Order No. R6V-2004-0034, which was adopted by the Water Board on July 27, 2004. The soils and vegetation in the eight fields that comprise the land treatment unit convert hexavalent chromium to trivalent chromium via a drip irrigation system. The Original Project allowed up to 345 gallons per minute (gpm) annual average pumping from the DVD property and discharge to the land treatment unit.

The Optimization Project was designed to enhance hydraulic control of the northwestern portion of the plume though the addition of groundwater extraction from six wells located on PG&E property to the southwest of the DVD. The Optimization Project was permitted under WDRs Order No. R6V-2004-0034A1, which was adopted by the Water Board on November 28, 2007. The total extraction and discharge rate continued to be limited to 345 gpm annual average.

## III. NEED FOR ADDENDUM TO THE NEGATIVE DECLARATION CEQA DOCUMENTS

The Original Project began operations in late 2004, with full-scale operation starting in 2005, to control further migration to the north of chromium-containing groundwater. The Optimization Project began in 2007 to control northwestern migration of the chromium plume. Recent monitoring has indicated that the chromium plume is not being completely contained to the north by the groundwater extraction wells of the Original Project. PG&E has proposed installing additional groundwater extraction wells on the DVD property and on two parcels that PG&E owns to the north and to the west of the DVD. These groundwater extraction wells are needed to control the northern edge of the plume and restore the aquifer in that area that is affected by chromium. Discharge from the proposed groundwater extraction wells is proposed to be discharged to the existing land treatment unit at the DVD.

The Negative Declarations for the Original Project and the Optimization Project did not consider the potential environmental impacts from the increased discharge volume to the land treatment unit and groundwater extraction at the two parcels adjacent to the DVD that is proposed in the Revised Optimization Project. Therefore, additional analysis of potential environmental impacts of the Project is needed.

## IV. CEQA ENVIRONMENTAL REVIEW REQUIREMENTS

The Water Board evaluated potential environmental impacts from the Original Project and the Optimization Project in the Negative Declarations for those projects that were certified by the Water Board. All potentially significant impacts were mitigated to levels of insignificance through requirements and mitigation measures incorporated into the WDRs for each project.

Where a lead agency already has approved a negative declaration, CEQA mandates that no subsequent or supplemental negative declaration or environmental impact report shall be required by the lead agency or any responsible agency, unless one or more of the following events occurs: (a) substantial changes are proposed in the project which will require major revisions of the environmental impact report or negative declaration; (b) substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report or negative declaration; or (c) new information, which was not known and could not have been known at the time the environmental impact report was certified as complete or the negative declaration was adopted, becomes available. (Pub. Resources Code, § 21166). Based on the facts set forth below, the Water Board finds that none of the events specified in sections (a) through (c) above have occurred, and that a subsequent or supplemental negative declaration or environmental impact report is not required.

CEQA Guidelines section 15164 provides that an "addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred." (CEQA Guidelines, § 15164, subd. (b).) The conditions set forth in CEQA Guidelines section 15162 track those set forth in Public Resources Code section 21166. Based on the facts described in detail below, the Water Board finds that none of the conditions triggering the preparation of a subsequent environmental document have occurred. However, PG&E has proposed additional groundwater extraction and discharge to the existing land treatment unit at the DVD as part of the proposed revised WDR. The Water Board has prepared this Addendum to be considered as an attachment to the Negative Declarations to evaluate this additional information and assess any potential environmental impacts associated with the revised project. An addendum need not be circulated for public review, but can be included in or attached to the adopted negative declaration. (CEQA Guidelines, § 15164, subd. (c).)

## V. POTENTIAL IMPACTS FROM PROPOSED PROJECT AND AMENDED WASTE DISCHARGE REQUIREMENTS

In preparing this Addendum, the Water Board has considered information submitted as part of the 2010 Report of Waste Discharge (RWD) regarding the Project's increased discharge volume and groundwater extraction from two adjacent parcels. The Discharger proposes to increase groundwater extraction and increase the discharge to the existing land treatment unit by 50 percent from the 2004 Original Project and 2007 Optimization Project for the purpose of capturing the migrating chromium plume boundary to the north and treating the captured groundwater.

Increased Groundwater Extraction

The increased groundwater extraction will be achieved up installing additional pumping wells on the northern portion of the Desert View Dairy property and adjacent properties to the north and east, all owned by the Discharger. The current permitted extraction and discharge amount is 345 gallons per minute as an annual average, with a maximum extraction and discharge rate of 450 gallons per minute during summer. The proposed increase will bring the new amount to 520 gallons per minute, annual average, or 2.3 acre-feet per day. As mentioned in the 2004 Mitigated Negative Declaration, the allocation available to the DVD is 656 acre-feet per day or 1.8 acre-feet per day. Additional ground water rights are available for project operations from the allocation granted to adjacent PG&E properties. The adjacent PG&E allocations total 1,326 acre-feet per day or 3.6 acre-feet per day. Therefore, ground water extraction rates during project operations are well within the combined allocated ground water rights at the DVD and adjacent PG&E properties of 5.4 acre-feet per day.

The increased extraction rate has the potential to lower groundwater levels at off-site properties. The Discharger has submitted estimated drawdown maps showing the "worst-case" scenarios for extent of groundwater drawdown to the east and north of the DVD. Up to two feet of additional drawdown may occur out to one-half mile to the north and east from the DVD. The predicted changes in water level are not anticipated to result in adverse impacts to private supply wells. Mitigation measures adopted in 2007 for monitoring water levels in wells

between the extraction wells and domestic wells will continue with the current project. Water level monitoring will provide early warning of potential unforeseen impacts on local wells.

Increased Discharge and Discharge Quality

At the land treatment unit's current maximum discharge rate of 450 gpm, during summertime when temperatures may reach 110 degrees Fahrenheit, the crops receive less than the agronomic rate for irrigation and are stressed. From April 2009 through March 2010, the Discharger conducted field-scale pilot testing that evaluated the effects of increasing the discharge rate by 50 percent. The pilot test results show that the grass crops of the land treatment unit are capable of using the increased amount of applied water, and there continues to be effective treatment of chromium at the increased discharge rate.

The Discharger submitted information regarding the anticipated quality of discharge water to the land treatment unit. The anticipated combined TDS concentration in water from the current and new extraction wells is expected to range from 1,800 mg/L to 2,200 mg/L. The groundwater in the upper aquifer below and downgradient of the land treatment unit contains constituents from past dairy and agricultural activities on the DVD and in the vicinity, chromium from the PG&E compressor station plume, and naturally occurring constituents. With the exception of chromium, extracted water from the proposed extraction wells contains constituents at higher concentrations than does extracted water from extraction wells located at the land treatment unit. Despite these higher concentrations of dairy and agricultural constituents, it is anticipated that there will be significant decrease in nitrate with time, and some decrease in chloride and sulfate with time, due to uptake by vegetation at the land treatment unit. Any potential increase in TDS below the land treatment unit as a result of the increased discharge will be localized and will result primarily from extracting higher TDS water from underneath the northern part of the DVD and to the immediate north and discharging it to the land treatment unit; this will result in no net change in TDS among the two areas.

Nearly six years of monitoring in the vadose zone indicates hexavalent chromium is effectively being treated such that pore water chromium is one to two orders of magnitude below the WDR criteria that was set to protect water quality and is at background levels for groundwater. At the pilot study's 50 percent increase in discharge rate, there continued to be effective treatment of chromium, with chromium concentrations more than an order of magnitude below the WDR criteria and at background levels for groundwater. Estimated chromium discharge concentrations will be lower than estimated in original discharge. TDS results from the pilot test showed that TDS and nitrate concentrations in the vadose zone did not differ appreciably from pre-test concentrations. The results support the conclusion that a 50 percent increase in the discharge rate above the currently permitted 345 gpm annual average will not significantly increase percolation of salts to groundwater.

Board Order R6V-2004-0034 contains a water quality limit for groundwater of 1,400 mg/L TDS. The water quality limit for TDS allowed for an increase of 400 mg/L over the estimated site groundwater average TDS of 1,000 mg/L due to discharges to the land treatment unit and salt tolerance of crops expected to be grown in the area. After the WDRs for the Original Project were adopted and prior to full-scale discharge to the land treatment unit in March 2005, background TDS and nitrate concentrations in groundwater were measured at higher concentrations than previously estimated. February 2005 groundwater monitoring data

showed an average TDS concentration of 1,312 mg/L and nitrate as N concentration of 9.9 mg/L. These concentrations are more reflective of water quality conditions prior to LTU full-scale start up and therefore justify adjusting water quality limits. The new TDS limit adds the 400 mg/l increase allowed under Board Order R6V-2004-0034 and the 1,312 mg/l average baseline TDS for a combined value of 1,712 mg/L.

Other Potential Environmental Effects

Air quality is potentially impacted by the proposed project. Construction activities may result in short-term emissions of PM-10. The construction activities will comply with Mojave Desert Air Quality Management District rules, which provide mitigation measures that will minimize PM-10 emissions during construction activities. No other potential adverse environmental effects are expected as a result of the proposed project.

## VI. ANTIDEGRADATION EVALUATION

Evaluation of potential water quality degradation associated with the land treatment unit was analyzed in WDR Order No. R6V-2004-0034. The antidegradation analysis demonstrated compliance with State Water Resources Control Board Resolution No. 68-16, *"Statement of Policy with Respect to Maintaining High Quality of Waters in California."* Under this policy, water quality degradation may be allowed if the following conditions are met: 1) any change in water quality must be consistent with maximum benefit to people of the State; 2) the degradation will not unreasonably affect present and anticipated beneficial uses; 3) the degradation will not result in water quality less than prescribed in the Basin Plan; and 4) discharges must be treated with the best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the state. The Water Board found that the Original Project would result in a long-term benefit from removal of chromium and nitrate from the groundwater. A localized, short-term increase in nitrate was expected. TDS degradation was expected to be localized, minor and would not further adversely impact present of future beneficial uses of the groundwater in the area, though TDS would continue to be above the Secondary Maximum Contaminant Level (MCL) of 1,000 mg/L. TDS in the project area exceeded the Secondary MCL and nitrate exceeded the Primary MCL of 45 mg/L (as nitrate) prior to the Original Project start due to previous affects from agriculture and dairy operations in the area, and therefore the groundwater did not meet the municipal and domestic supply beneficial use. At the end of the Original Project, TDS was expected to increase by 400 mg/L in the project area, and that increase was determined to still be suitable for crops expected to be grown in the area.

The proposed Revised Optimization Project will increase the salt loading to the groundwater within the discharge area as a result of extracting higher TDS water from underneath the northern part of the DVD and to the immediate north, which are areas immediately downgradient of the discharge area. The Water Board finds that the degradation associated with the Revised Optimization Project is reasonable, acceptable, and appropriate based on the following conditions:

1. *The water quality changes are consistent with maximum benefit to people of the state.*

   The project will remove chromium and nitrate from the groundwater, thereby providing overall improvement to water quality. TDS increases area localized and minor, primarily

resulting from mixing existing lower quality groundwater from outside the discharge area with slightly better groundwater in the discharge area.

2. *The water quality changes will not unreasonably affect present and anticipated beneficial uses.*

   Groundwater in the discharge area and from the proposed area of new extraction currently does not meet the designated beneficial use of municipal and domestic supply due to elevated nitrate and TDS. The proposed project will reduce chromium and nitrate in the groundwater. TDS changes will be localized, minor, and the groundwater will still be suitable for crops likely to be grown in the area.

3. *The water quality changes will not result in water quality less than prescribed in the Basin Plan.*

   Groundwater Beneficial Uses for Middle Mojave River Valley (6-41) are described in Table 2-2 of the Water Quality Control Plan for the Lahontan Region (Basin Plan). These uses are municipal (MUN, agricultural (AGR), industrial (IND), freshwater replenishment (FRSH), and aquaculture (AQUA). Narrative and numerical water quality objectives to protect these beneficial uses are described in the Basin Plan. Groundwater in the proposed project area currently exceeds the municipal and domestic supply standards for nitrate and TDS, and TDS in the groundwater is currently not suitable for salt sensitive crops. Water quality changes associated with the proposed project will result in improved nitrate conditions due to nitrate removal by crops in the land treatment unit. TDS changes associated with the proposed project are expected to result in water quality that is still suitable for crops currently and likely to be grown in the area.

4. *The discharge must use the best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the state.*

   The land treatment unit and the groundwater extraction system are designed to implement equivalent of the “best practicable treatment or control.” The long-term benefit of the project will result in removal of chromium and nitrate from the groundwater. Any TDS changes in groundwater are localized, minor and will still be suitable for crops currently and likely grown in the area.

Based on the above factors, the Water Board finds that the degree of groundwater degradation is insignificant and that (1) changes in water quality as a result of the proposed project are consistent with maximum benefit to people of the state, (2) existing beneficial uses will not be affected, (3) changes in water quality will be consistent with Basin Plan objectives, and (4) the best practicable treatment or control of the discharge has been incorporated such that no pollution or nuisance results from the discharge. Therefore, the Water Board further finds the project is consistent with State Water Resources Control Board Resolution No. 68-16.

## VII. CUMULATIVE IMPACTS ANALYSIS

The Water Board has also considered information submitted to support the proposed project with regard to potential cumulative impacts and has concluded that the Project, when added to the potential related impacts of other projects, will not cause significant cumulative impacts.

Under CEQA, a cumulative impact may result when two or more individual effects, when considered together, are considerable or would compound or increase other environmental impacts. (CEQA Guidelines, §15355.) According to CEQA Guidelines section 15130, subdivision (b), "[T]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone."

This Addendum analyzes the potential impacts associated with the proposed Amended WDRs for the proposed project. At the time of certification of the Negative Declarations for the Original Project and the Optimization Project, the Water Board concluded for each that "[t]here is no substantial evidence that the project will have a significant effect on the environment."

The project is surrounded primarily by agricultural development. Because of the minimal new development expected in the vicinity of the proposed project, the potential for significant cumulative environmental impacts is considered limited. Project construction activities may temporarily contribute minor amounts to the existing PM10 air concentrations in the region. Implementation of dust control and other measures developed by the Mojave Desert Air Quality Management District will ensure this impact is minimized. Project operations require the withdrawal of groundwater from the Mojave Basin. However the level of withdrawal will be within the water allocation rights granted by the Mojave Basin adjudication. Since the 1996 water rights adjudication, groundwater levels have risen in the basin. Drawdown of water levels from the project's groundwater extraction has little potential to adversely affect nearby water supply wells. Changes in TDS concentrations in groundwater are minor and not expected to result in loss of any currently existing beneficial use. The proposed project will improve existing nitrate and chromium conditions in groundwater.

## VIII. CONCLUSION

Based on the substantial information in the record and the information summarized in sections V, VI and VII of this Addendum, the Water Board finds that none of the circumstances set forth in Public Resources Code section 21166 or CEQA Guidelines section 15162, subdivision (a) requiring the preparation of a subsequent EIR are present for this Project. Specifically, the Water Board finds (i) no substantial changes are proposed in the Project that will require major revisions to the previous CEQA analyses done by the Water Board due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; (ii) no substantial changes have occurred with respect to the circumstances under which the Project is to be undertaken that will require major revisions to the previous CEQA analyses due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and (iii) there is no new information of substantial importance,

which was not known and could not have been known with the exercise of reasonable diligence at the time the CEQA analyses were adopted, that shows new significant effects, substantially more severe significant effects, or additional feasible mitigation measures. Therefore, the Water Board finds that this Addendum is appropriate to address the additional information now available regarding the proposed Project.

**CALIFORNIA ENVIRONMENTAL QUALITY ACT**
**ADDENDUM TO NEGATIVE DECLARATIONS**
**DESERT VIEW DAIRY LAND TREATMENT UNIT**
**REVISED OPTIMIZATION PROJECT**

## LIST OF REFERENCES


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